

AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

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PHILADELPHIA, PA.

"Promotion of Knowledge of Materials of Engineering and Standardization of Specifications and Methods of Testing"

Number 79

March 23, 1936

Annual Meeting in Atlantic City, June 29—July 3

Interesting Program Being Developed

PLANS ARE actively under way in the development of the technical program and other features of the Thirty-ninth Annual Meeting to be held at Chalfonte-Haddon Hall, Atlantic City, June 29-July 3, and it is expected the meeting will be a most interesting one. While complete details of the program will appear as usual in the Provisional Program, published as part of the April BULLETIN, there are certain developments which may be of interest to the members at this time.

TECHNICAL PROGRAM

While the Symposium on Radiography and X-ray Diffraction Methods will be the outstanding feature, other sessions are planned that will be of particular interest to certain fields. Committee D-11 on Rubber Products is completing plans for a group of technical papers to be presented on the subject "The Limitations of Laboratory and Service Tests in Evaluating Rubber Products." The papers will deal with such products as tires, footwear, automotive parts, hose and belts, insulated wire and cable, etc. These papers should be of widespread interest because of the extensive use of rubber products in so many fields.

Another session that promises to be outstanding will be the one sponsored by the Joint Research Committee on Boiler Feedwater Studies and A.S.T.M. Committee D-19 on Water for Industrial Uses. In addition to the reports of the two committees, the session will include papers on the following subjects: rate of reaction of anhydrous sodium sulfite on dissolved oxygen, interpretations of studies on the cracking of steel, the use of solubility data to control the deposition of sodium sulfate, the effect of sodium sulfate and other salts on the action between sodium hydroxide-sodium silicate solutions and steel, and the determination of oxygen in boiler water.

The Symposium on Radiography and X-ray Diffraction Methods comprises twelve papers, six covering diffraction and six radiography. The development of this feature is in the charge of Subcommittee VI on X-ray Methods of the Society's Committee E-4 on Metallography under the chairmanship of Dr. R. F. Mehl, Carnegie Institute of Technology. He is directing the development of the section on diffraction, while

Dr. H. H. Lester, Watertown Arsenal, is performing a similar function in the radiography division.

Outstanding authorities in these fields are preparing the papers and a most useful symposium is anticipated. The papers are intended to cover methods and equipment, case histories of successful applications, comparison of X-ray methods with other methods and application of radiography and diffraction methods to both metallics and non-metallics. It is anticipated that at least two sessions of the meeting will be devoted to the symposium.

In addition to these three features, Committee E-6 on Papers and Publications at its last meeting considered the large number of offers of papers that were submitted and has accepted many of these, with further consideration being given to others so that a well-rounded program will result. In so far as possible synopses of the papers and committee reports will be given in the Provisional Program. Preprints will be available to members and distributed in the usual way, each member receiving a request blank with the April BULLETIN. Preprints will be sent only to those members who request them.

EDGAR MARBURG LECTURE

The Edgar Marburg Lecture will be delivered by Dr. Arthur L. Day, Director, Geophysical Laboratory, Carnegie Institution of Washington. Doctor Day will discuss the subject of glass, in which field he is an outstanding authority. Further details of the lecture will be announced.

HOTEL ACCOMMODATIONS

Many Society meetings have been held at Chalfonte-Haddon Hall and most members are familiar with the facilities available for the meeting and also room accommodations. Rooms are available on either American or European plan. Special rates are being obtained for A.S.T.M. members and these rates, together with an advance registration card, will be sent to each member with his copy of the April BULLETIN. Members who may wish to make reservations immediately may do so by addressing the hotel management.



BULLETIN

March, 1936 . . . Page 1

Successful Regional Meeting in Pittsburgh

Interesting High-Strength Metals Symposium; Regional Dinner Held

WITH the Symposium on High-Strength Constructional Metals as its main feature, the A.S.T.M. Regional Meeting, held in Pittsburgh on March 4 was an outstanding success. The afternoon technical session was followed by a dinner at which a most interesting program was presented.

The symposium was arranged by a special committee headed by Jerome Strauss, Vice-President, Vanadium Corporation of America, and the success of the technical sessions is largely due to his efforts in soliciting the papers and in planning the numerous other details necessary for a feature of this kind. There were about 225 in attendance at the technical sessions.

The five papers were well received and interest was sustained throughout. Particularly interesting was the discussion of the two papers on steel presented in the afternoon session. The papers and authors were as follows:

MORNING SESSION

Alloys of Aluminum and Magnesium—E. H. Dix, Jr., Chief Metallurgist, and J. J. Bowman, Metallurgical Division, Aluminum Research Laboratories, Aluminum Company of America.
Alloys of Copper—C. H. Davis, Metallurgist, The American Brass Co.
Alloys of Nickel—G. F. Geiger, Research and Development Dept., The International Nickel Co.

AFTERNOON SESSION

Carbon and Low-Alloy Steels—E. F. Cone, Editor, *Metals and Alloys*.
Corrosion-Resisting Steels—E. E. Thum, Editor, *Metal Progress*.

Prior to the meeting copies of the papers were distributed to those who were interested in presenting discussion and it was evident from a brief review of the papers that the authors had done a great deal of work in gathering and correlating a great amount of valuable data and information on the respective materials covered. With the large number of new alloys, both ferrous and non-ferrous, that are of comparatively recent development, the symposium, in the opinion of leading technologists will serve a most useful purpose in bringing together in one convenient place up-to-date information on physical, metallurgical properties, etc., of the so-called high-strength constructional metals.

Messrs. R. F. Mehl and N. L. Mochel were co-chairmen of the morning session and, in the afternoon, H. W. Gillett and H. F. Moore were the presiding officers.

It is planned to publish the five papers and the oral and written discussion as a separate publication and further announcement will be made concerning this. Attention is called to the notice on page 7 concerning discussion.

DINNER; INDUSTRIAL TRIPS

The regional meeting dinner was held following the afternoon session with about 200 members and guests present. A most interesting program had been planned including talks by Dean Harvey, chairman of the Pittsburgh District Committee, on "The A.S.T.M. District Committee Plan"; B. H. Witherspoon, President, Pittsburgh Testing Laboratories, on "The Role of the Commercial Testing Laboratory"; President H. S. Vassar on "Recent Developments in the Society"; and finally the principal address of the evening by S. M. Kintner, Vice-President in Charge of Engineering, Westinghouse Electric and Manufacturing Co., on the subject, "Electricity Marches On." This was followed by two reels of a sound film entitled "The New Frontiers" shown through the courtesy of the Westinghouse organization. Dr. Paul D. Foote, Director, Gulf Research Laboratory, The Gulf Cos., was toastmaster at the dinner.

Throughout the week in which the Regional Meeting was held, there were in progress the annual Group Meetings of A.S.T.M. Committees, and a number of interesting industrial trips were arranged for the members attending committee sessions. Visits were made by a number of members to the research laboratories of the Gulf Research and Development Co., Harmarville; Aluminum Company of America, New Kensington; Mellon Institute of Industrial Research and the open-house inspection of the Pittsburgh Testing Laboratory, at which a number of demonstrations were given.

Arrangements for the meetings were in charge of the Pittsburgh District Committee and much credit for the success of both the Regional Meeting and Committee Week should be given this committee. The committee is headed by Dean Harvey, Materials Engineer, Material and Process Engineering Dept., Westinghouse Electric and Manufacturing Co., with F. M. Howell, Engineer of Tests, Aluminum Research Laboratories, Aluminum Company of America, secretary. As indicated, Mr. Strauss was chairman of the program committee, while the trips committee was headed by Max Hecht, Consulting Chemical Engineer. Special credit is due W. H. McCune, Assistant Metallurgical Engineer, American Sheet and Tin Plate Co., chairman of the dinner and entertainment committee, for his untiring efforts throughout the week in handling the details in connection with the meetings.



Dean Harvey

Max Hecht

Gimbels Photo-Reflex
W. H. McCune

Jerome Strauss

F. M. Howell



Work Advanced During Committee Week

Many Active Committee Meetings Held; Record Registration Reported

THE 1936 Group Meetings of the A.S.T.M. Committees were held in Pittsburgh at the Hotel William Penn from March 2 to 6, there being a total of about 140 meetings of main committees, sections and subcommittees. Most of the meetings, particularly those in the metals fields, were very well attended and the total registration for the week, 626, exceeded that for any other committee week. Registration in Philadelphia, 1935, was 615, the previous high.

Much constructive work was accomplished by the various committees and the numerous research programs were reviewed. Additional test programs are to be started in certain fields. Since 1936 is Book of Standards year, many of the standing committees concentrated on their standardization programs and took action to recommend the adoption as standard of many existing tentative specifications and proposed revisions.

The following committees held meetings and in most cases a number of their subcommittees met:

A-1 on Steel	D-4 on Road and Paving Materials
A-2 on Wrought Iron	D-5 on Coal and Coke
A-3 on Cast Iron	D-8 on Bituminous Waterproofing and Roofing Materials
A-5 on Corrosion of Iron and Steel	D-11 on Rubber Products
A-6 on Magnetic Properties	D-15 on Thermometers and Laboratory Glassware
A-7 on Malleable Iron Castings	D-19 on Water for Industrial Uses
A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys	E-1 Subcommittees (Methods of Testing)
B-1 on Copper Wire	E-4 on Metallography
B-5 on Copper and Copper Alloys	E-9 on Research
B-6 on Die-Cast Metals and Alloys	Research Committee on Fatigue of Metals
B-7 on Light Metals and Alloys	Joint Committee on Effect of Phosphorus and Sulfur in Steel
C-1 on Cement	Subcommittees of Joint Research Committee on Effect of Temperature on the Properties of Metals
C-3 on Brick	Joint Committee on Exposure Tests of Plating on the Non-Ferrous Metals
C-7 on Lime	
C-9 on Concrete and Concrete Aggregates	
D-1 on Preservative Coatings	
D-2 on Petroleum Products and Lubricants	
D-3 on Gaseous Fuels	

The outlines given below of various committee activities will give some idea of the progress made and of the programs which the committees have under way.

Most of the actions taken at the meetings will of course be submitted to letter ballot of the various committees prior to formal recommendation to the Society at the annual meeting in June, this being particularly true in the case of actions in the standardization field. It will be noted that a large number of new standards are being considered for recommendation to the Society for publication as tentative and that a number of existing tentative specifications and tests will be offered for formal adoption as A.S.T.M. standards.

Committee A-1 on Steel

Two specifications covering high-carbon steel joint bars and quenched carbon-steel joint bars have been developed in cooperation with a committee of the American Railway Engineering Assn. These are essentially revisions of existing A.S.T.M. standards and when approved as tentative will supersede the standards. Existing revisions in the Specifications for Open-Hearth Carbon-Steel Rails (A 1—30) were recom-

mended for adoption as standard.

Extensive changes in the present Standard Specifications for Structural Nickel Steel (A 8—29) were approved in the form of a proposed new specification. When the latter is approved, the existing standard will be withdrawn. Requirements for tensile strength in the specifications have been raised to a range of 90,000 to 115,000 lb. per sq. in. with a minimum yield point of 55,000 lb. The chemical requirements on ladle analysis provide for a maximum permissible carbon of 0.43; maximum manganese, 0.80; with nickel range of 3 to 4 per cent.

The subcommittee in charge of the specifications covering structural steel for bridges (A 7—34) buildings (A 9—34) and structural silicon steel (A 94—33) also recommended the adoption as standard of the changes proposed in the finish clause first published last year, which provide for the conditioning of non-injurious surface imperfections by grinding or welding. It was recommended that the clause reading "the chipping and welding shall be performed under constant control by the manufacturer" be changed to read as follows:

"An experienced mill inspector shall inspect the work after the chipping operation to see that the defects have been completely removed and that the limitation specified above has not been exceeded. The inspector representing the purchaser shall be given full opportunity to make this same inspection."

Proposed new specifications covering welded wire fabric and also bar or rod mats for concrete reinforcement were submitted and further study will be made of the requirements for expanded metal reinforcement. The Joint Committee on Standard Specifications for Concrete and Reinforced Concrete which requested that specifications covering fabricating reinforcement material be developed included in its list woven wire fabric. Because it does not seem practicable to include requirements for this material in the welded wire fabric specifications, a separate standard is to be developed. The committee recommended the adoption as standard of the tentative Specifications for Axle Steel Concrete Reinforcement Bars (A 160—35 T).

Special subgroups are to continue consideration of the requirements for alloy-steel and carbon-steel forgings. An attempt will be made to combine certain of the existing specifications, but the committee plans to keep in mind that the utility of the specifications and proper grades are of primary importance.

To meet the demand for specification requirements for light weight wheels used in freight car service, the committee has developed proposed specifications for one-wear and two-wear solid wrought carbon-steel wheels.

The subcommittee on steel castings voted to recommend certain modifications and a change in the serial designation of the Tentative Specifications for Carbon-Steel Castings for Miscellaneous Industrial Uses, which was issued last year and numbered A 180—35 T. It is to be renumbered A 27—36 T and with this change, the former standard A 27—24 will be withdrawn. Two of the important specifications in the charge of the subcommittee were recommended for adoption as standard. These cover alloy-steel castings



for structural purposes (A 148 — 33 T), in which minor changes are to be made, and carbon-steel and alloy-steel castings for railroads (A 87 — 35 T).

A number of important recommendations were offered by Subcommittee IX on Steel Tubing and Pipe. Existing tentative specifications are to be voted upon for adoption as standard covering the following: black and hot-dipped zinc-coated (galvanized) welded and seamless steel pipe for ordinary uses (A 120 — 34 T); electric-fusion-welded steel pipe (sizes 30 in. and over) (A 134 — 32 T); and electric-fusion-welded steel pipe (sizes 8 in. to but not including 30 in.) (A 139 — 34 T). Two new specifications covering 4 to 6 per cent chromium alloy steel for still tubes and heat-exchanger and condenser tubes are to be proposed.

Three tentative specifications in the charge of Subcommittee XI on Boiler Steel were recommended for adoption as standard. They cover carbon-steel plates for boilers and other pressure vessels for stationary service (A 70 — 35 T), high tensile strength carbon-steel plates for pressure vessels (plates 2 in. and under in thickness) (A 149 — 35 T), and high tensile strength carbon-steel plates for fusion-welded pressure vessels (plates over 2 in. up to and including 4 in. in thickness) (A 150 — 35 T). Certain editorial changes clarifying titles and scope of these specifications were approved.

Important changes were made last year in the specification requirements covering commercial quality hot-rolled and cold-rolled bar steels, A 107-33 and A 108-33, respectively, particularly in the number of grades and in the chemical compositions. In order to simplify the grade designations and include grades which are in most widespread use, additional changes were recommended to be incorporated in the standards this year. Twenty-seven grades numbered from 1 to 27 are provided for in the specifications for hot-rolled bars, while 17 are provided for in the cold-rolled bar requirements.

The Subcommittee on Steel for Welding, which has been cooperating with representatives of the American Welding Society in the development of specifications for filler metal, plans to give further consideration to the specification draft which was presented and critically discussed at its meeting.

Action was taken to distribute to each member of Committee A-1 the extensive report presented by the Creep Data Section of the subcommittee on materials for high-temperature service. The section in charge has been at work for a period of many months developing this extensive compilation of creep data and the committee believes it will serve a most useful purpose.

It is planned to refer to letter ballot for approval the proposal that the Specifications for Alloy-Steel Castings for Valves, Flanges and Fittings (A 157 — 35 T), Seamless Alloy-Steel Pipe (A 158 — 35 T), and Forged or Rolled Alloy-Steel Pipe Flanges, etc. (A 182 — 35 T), all three covering materials for service from 750 to 1100 F., be adopted as A.S.T.M. standard specifications. Similar action is proposed in connection with the requirements covering Electric-Fusion-Welded Steel Pipe (A 155 — 34 T) and Lap-Welded and Seamless Steel Pipe (A 106 — 34 T).

Committee A-2 on Wrought Iron

This committee will conduct a letter ballot on proposals to adopt as standard the existing tentative Specifications for Uncoated Wrought-Iron Sheets (A 162 — 35 T) and for Zinc-

Coated (Galvanized) Wrought-Iron Sheets (A 163 — 35 T). The former cover sheets for use in roofing, siding and corrugating and other moderate forming requirements. The latter specifications cover sheets for use in culverts, roofing, siding, etc., with four grades of zinc coatings applied by the hot-dip process. They were first issued in 1935.

The committee plans to recommend the adoption as standard of a number of existing revisions in several specifications including those covering the following: common iron bars; refined wrought-iron bars; hollow-rolled staybolt iron; and blooms and forgings for locomotives and cars. The committee is working on proposed specifications covering high-grade single refined wrought-iron bars and double-refined bars and expects to report these shortly.

The committee decided that it would be desirable to retain as tentative for another year the Specifications for Wrought-Iron Plates (A 42 — 35 T) because of the fact that the specifications represent quite a departure from the usual wrought iron specifications and retaining them as tentative will enable additional comments to be received concerning their suitability.

Committee A-5 on Corrosion of Iron and Steel

The latest inspections of the atmospheric corrosion tests on the copper-bearing and non-copper-bearing iron and steel sheet specimens exposed at Annapolis, Md., since October, 1916, were reported. This progress report covered the failures noted since the latest published report in 1935 of the tests under way.

A progress report was presented of the inspections of galvanized sheet specimens which have been exposed for nine years at five test locations, namely, Brunot Island (Pittsburgh), Pa.; Altoona, Pa.; Sandy Hook, N. J.; State College, Pa., and Key West, Fla. The additional data observed at these current inspections will further aid the committee in obtaining a picture of the progressive deterioration of the galvanizing on these sheet specimens due to different conditions of atmospheric exposure.

The committee also received a progress report on the comprehensive series of tests on eight types of metallic coatings applied to hardware, structural shapes, tubular goods, etc., which have been under way at five test locations for almost seven years. An extensive tabulation of the information obtained after six years' exposure was presented last year. The results tabulated at that time showed that in most cases the proportion of the exposed surface of the specimens covered with rust had increased but that the additional rusting did not appear to have altered previous indications of the data. Plans are being made for the expansion of the present program to provide quantitatively comparable tests on equal thicknesses of sherardized, hot-dip and electro-galvanized zinc coatings on hardware items of identical shape.

The committee reviewed the three specifications for electrodeposited coatings on steel that were published as tentative last year, having been prepared under the joint cooperation of the American Electro-Platers' Society, the National Bureau of Standards and A.S.T.M., and decided that the specifications should be continued as tentative. They give requirements for electrodeposited coatings of zinc, cadmium, nickel and chromium on steel.

The three A.S.T.M. specifications covering telephone and

(Continued on page 10)



DISTRICT COMMITTEE ACTIVITIES

Meetings in Chicago

THE Chicago District members will meet on April 8 at a dinner meeting which President Vassar and the Secretary-Treasurer have arranged to attend. Prof. D. B. Keyes of the Department of Chemical Engineering at the University of Illinois will speak on "Value to the Industries of the Exact Determination of Physical and Chemical Properties." Members are urged to attend and meet the officers of the Society and to invite non-members who are associated with work covered by the Society's activities. The meeting will be held at the Chicago Engineers Club, 314 Federal St., and detailed announcements will be mailed to all members in the District.

On March 12 the members of the Chicago District joined with the Chicago Chapter of the American Society for Metals in a dinner meeting, the attendance being 345. Prof. A. V. de Forest of Massachusetts Institute of Technology spoke on "Unusual Methods of Inspection." Previous to Professor de Forest's talk, sound pictures were shown illustrating the methods of manufacturing and installation of submarine telephone cable, the growth of long-distance telephony, and the use of loading coils and vacuum tubes in communication systems.

Professor de Forest's talk dealt largely with the effect of the "form factor" in fatigue testing. He showed a large number of slides illustrating the occurrence and development of fatigue cracks in rotating beam specimens, most of which originated at the bottom of tool or grinding marks on the specimens or at internal flaws near the surface. The presence of these cracks was detected and their extent measured by means of changes in the magnetic properties of the specimens at these points.

He also showed the results of some work being done in the study of the distribution of stresses in I-beam sections under bending moments. A coating of material having a yield point below that of the material under test was used to show the distribution of the stresses at the surface of the specimen.

Johnston to Address Detroit Meeting

Announcement of the new officers and enlarged personnel of the Detroit District Committee appeared in the January BULLETIN. This committee will hold a dinner meeting on April 7 at which President Vassar and the Secretary-Treasurer are to be present. Dr. John Johnston, Director of Research, U. S. Steel Corp., has accepted an invitation to address this meeting, to which Detroit members of the Society of Automotive Engineers and American Society for Metals are cordially invited.

Details covering meeting place, hour of the dinner, etc., will be sent all members in the Detroit area and to local members of other societies who are being invited to participate in the meeting.

At a recent meeting of the committee various subcommittees were appointed to take charge of phases of the work. The Committee on Speakers includes Messrs. T. A. Boyd and A. E. White; Meetings and Dinner, Messrs. C. H. Fellows and J. L. McCloud; Publicity, Messrs. W. C. Du Comb, Martin Castricum and Frank Burton; Membership, Dr. C. E. Heussner.

Southern California

THE Southern California District Committee was host at a dinner meeting in Los Angeles on March 10. The first session followed the dinner, with about 150 in attendance. In the opening remarks by the chairman, T. A. Fitch, the nature, purpose and scope of the Society's work was pointed out, and examples given to show the wide range of occupations of the members and guests attending the meeting. Then a talk was given on "Progress in Earthquake Resistant Design and Construction" by Paul E. Jeffers, Los Angeles structural engineer, prominent in school rehabilitation work. Following this the meeting recessed so that members might become better acquainted with each other.

For the program of the second session each member had been invited to submit one or more topics relating to recent tentative or adopted A.S.T.M. standards, or committee reports, which topics would be suitable for open forum discussion at this meeting. From those submitted several subjects were selected and interesting presentations and discussions followed as each topic was put before the meeting.

The assembly went on record in the form of recommendations on four matters, relating to a complete line of standard analyzed samples, the adoption of the Los Angeles rattler in the Standard Method of Test for Abrasion of Rock (D 2 — 33), a service test for concrete curing compounds in the Standard Specifications for Curing Portland-Cement Concrete Slabs with Bituminous Coverings (C 81 — 34), and the restoration of the percolation test of clay sewer pipe together with a requirement for tamping the sand bedding for testing pipe as described in the Standard Specifications for Clay Sewer Pipe (C 13 — 35).

New York Meeting on Resins

The New York District Committee under the chairmanship of M. F. Skinker, plans to sponsor a meeting in April, the tentative date of April 21 having been set, at which Mr. Carleton Ellis will speak on the subject "A Lantern Slide Talk on Synthetic Resins." Mr. Ellis is an authority in this field and a most interesting meeting is anticipated. Complete details of the meeting, including the hotel where it will be held, will be sent to all members in the New York area and other announcements will be made.

Cement Laboratory Inspection

THE Cement Reference Laboratory, a joint project of the National Bureau of Standards and the American Society for Testing Materials and sponsored by A.S.T.M. Committee C-1 on Cement, is now preparing for a fifth inspection tour among cement testing laboratories. Those laboratories which desire to avail themselves of this inspection service should address their requests therefor to the Cement Reference Laboratory at the National Bureau of Standards. Applications for inspections should be filed promptly since the itineraries for the inspectors will be prepared at an early date. The proposed tour will, in general, provide only one opportunity for the inspection of any laboratory during the next year or two.



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Normal Expansion

ANYONE familiar with Society work, even though not in direct contact with it, who takes the short time necessary to read through this issue of the BULLETIN, will be conscious of the fact that the A. S. T. M. work in standardization and research is going ahead in full blast. And of more significance is the fact that these activities are branching out into new fields.

The latter will be evident from studies of the condensed statements of committee activities reported as a result of Committee Week in Pittsburgh, from announcements of new committees being organized such as the one on paper (see page 8), and notices of meetings (see page 5 for example).

Demands on the Society to undertake activities in various fields, representing either entirely new fields of endeavor, or expansion of current work to embrace a wider scope are constantly being received. The amount of standardization work that A. S. T. M. might well undertake as a service to industry is tremendous.

Those directing A. S. T. M. affairs are keenly conscious that the Society should, as soon as it is feasible, endeavor to meet requests for the establishment of standard specifications and methods of test for engineering materials and the development of authoritative data on the properties of these materials, through unbiased research. A certain amount of work is required, however, in the establishment of a new committee—the scope must be meticulously prescribed, adequate personnel carefully selected, a practical work program laid out, etc. All of this takes time.

It is safe to predict, however, that a résumé of A. S. T. M. work prepared a few years hence will see many new committees at work producing important and needed standards and information.

This expansion means that the Society will be rendering further service. And it will add much to the inherent value of membership in A.S.T.M.

We Grow

THE NUMBER of new members included in the list on page 18, totaling 71, compares with a corresponding figure in the March, 1935, BULLETIN, of 43. While these figures may not be truly comparable, the following are: New members from January 1 to March 18, last year, 113; same period this year, 153. Hence we have an increase of 40 new members, while the number of resignations and other losses is about the same as in 1935.

While these figures are encouraging, we should not depend on figures, *per se*, to draw conclusions. If we compared the number of new members in early months of 1926 with this year, for example, and did not take into account industrial conditions, etc., the 1936 picture would not be particularly bright. Considering the various factors and conditions, however, the number of new members so far is heartening.

When the sources responsible for the new members are studied, it is of special interest to note that the greatest number were attributed to the work of the special membership committee of 750. The conclusion most logical to draw from this fact is that the Society members themselves can do most in regaining the ground lost and every member can help in this important work.

1936 Book of Standards

A NUMBER of inquiries have been received concerning the date of publication of the 1936 Book of A.S.T.M. Standards. This widely used publication is issued every three years, the last edition having been published in 1933. Usually, the Book of Standards is published during the last quarter of the year in October or November. This publication date is governed by the fact that many actions are taken at the annual meeting held in the year of publication of the Book of Standards affecting new standards and revisions, etc., all of which entail a considerable amount of work before the standards can be assembled in their latest form.

SOCIETY APPOINTMENTS

Announcement is made of the following Society appointments:

R. W. CHADBOURN, Assistant Superintendent, Standardizing and Testing Dept., Edison Electric Illuminating Co. of Boston, as one of the Society's representatives on the Sectional Committee on Insulated Wires and Cables.

A. W. KENNEY, E. I. du Pont de Nemours and Co., on the Inter-Society Color Council, as a representative of Committee E-2 on Spectrographic Analysis.

F. B. FOLEY, in Charge of Laboratories and Investigations, The Midvale Co., as a member of the A.S.M.E.-A.S.T.M. Joint Research Committee on Effect of Temperature on the Properties of Metals.

PRESIDENT H. S. VASSAR, Laboratory Engineer, Public Service Electric and Gas Co., on the American National Committee of the Third World Power Conference.

E. W. BAUMAN, Engineer of Tests, Tennessee State Highway Dept., as a representative of the Society on the Joint Committee on Mineral Aggregates.

F. C. LANGENBERG, Vice-President in Charge of Research, Engineering and Development, United States Pipe and Foundry Co. on the Joint Committee on Pig Iron Qualities.

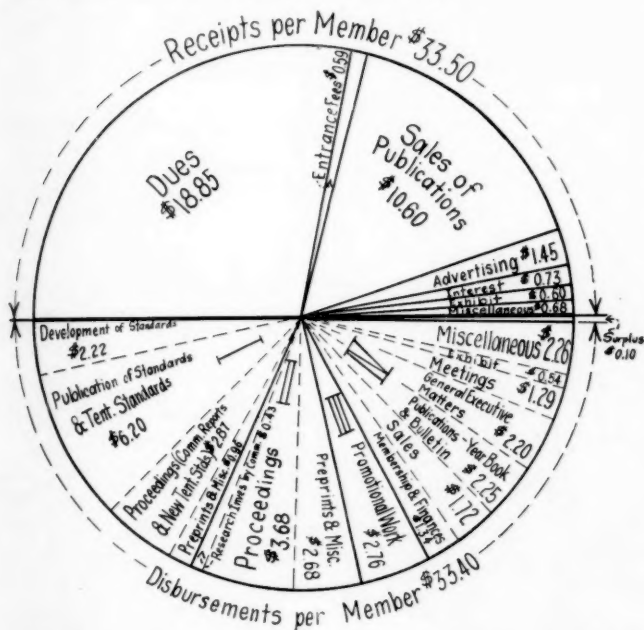
C. A. HOGENTGLER, Senior Highway Engineer, U. S. Bureau of Public Roads, and W. S. HOUSEL, Assistant Professor of Civil Engineering, University of Michigan, as A.S.T.M. representatives at the International Conference on Soil Mechanics and Foundation Engineering, to be held at Cambridge, Mass., June 22-26, 1936.



Notes on Society Finances

FOLLOWING are some pertinent abstracts from the Secretary-Treasurer's report to the Executive Committee in January on 1935 finances and on the budget for 1936.

Total receipts for 1935 were \$120,357, comprising \$69,856 from dues and entrance fees, \$38,081 from sales of publications and \$12,420 from advertising, exhibit, interest and miscellaneous sources. Dues and entrance fees were about \$2400 greater than the preceding year, reflecting the small but encouraging upturn in the membership curve. Sales of publications were the second largest in our history, with sales of separate standards and the various compilations of standards for specific industries reaching a new high. Aside from their importance as a source of income, representing practically one-third of the total, publications sales serve most effectively to spread the influence of the Society's specifications and methods and markedly increase their use among producers, consumers and various regulatory bodies. Advertising in the BULLETIN and in the Index to Standards and Tentative Standards increased about 30 per cent over the preceding year; the BULLETIN (after a lapse of two years) is again on a self-sustaining basis considering cost of printing and distribution, and the Index is nearly so.



Total disbursements for the year were \$119,994, including \$5000 reserve for the 1936 Book of Standards and unusually large expenditures for certain of the publications.

Receipts and disbursements per member are shown in the accompanying chart. Receipts averaged \$33.50 per member, of which only \$18.85 was from dues. Sales of publications averaged \$10.60 per member, or over half the income from dues. Disbursements are classified into the following four groups, with per member amounts as follows:

I. Standardization, Development and Promulgation	\$12.25
II. Advancement of Knowledge of Materials	6.79
III. Promotional Work	2.76
IV. Administrative Work	11.60

\$33.40

These figures tell an interesting story of the relative cost of the several lines of work of the Society.

Receipts for 1936, estimated at \$122,750, are based on further membership growth, continued sales of publications and slight increases in advertising. The budget for disbursements provides for the triennial edition of the Book of Standards, the usual annual publications, preprints, reprints and all special publications, and for a substantial increase in the BULLETIN. Expenditures will be reviewed quarterly and adjusted within actual income, supplemented if necessary by a moderate amount from reserve funds.

First quarter indications are encouraging. The strong trend in new membership and publication sales that developed during the latter part of 1935 has continued unabated, and receipts for January and February are slightly above budget estimates.

New Publications to Be Issued

WORK is now under way on three publications which it is expected will be issued within the next few months. Two of these are symposiums held at local meetings sponsored by district committees—the first, a Symposium on Industrial Fuels, which was arranged by the Philadelphia District Committee in cooperation with the Philadelphia Engineers' Club, and the second, the Symposium on Pearlitic Malleable Iron, prepared by a special committee of the Cleveland District Committee.

The Symposium on Industrial Fuels comprises four extensive technical papers dealing with: liquefied petroleum gas, manufactured gas, coal and coke and industrial fuel oil. A prospectus is enclosed with this BULLETIN (see page 14) for the convenience of members who wish to order copies of this publication.

The Symposium on Pearlitic Malleable Iron was prepared by a special committee headed by Prof. H. M. Boylston with representatives from the Society's Committee A-7 on Malleable Iron Castings, the American Foundrymen's Assn., and other organizations. A large section of the symposium is based on material furnished from a number of sources, particularly producers of malleable iron.

The Industrial Fuels symposium, which will comprise about 80 pages, will be made available to members at the special price of 50 cents per copy and the publication on Pearlitic Malleable Iron, which will comprise about 28 pages, will be furnished members at 35 cents per copy. It is expected that the publications will be ready for distribution within the next few weeks.

The third publication to be issued will comprise the five papers and extensive discussion presented in the Symposium on High-Strength Constructional Metals. It is anticipated there will be widespread demand for this publication in view of the extensive and valuable data included.

Discussion of High-Strength Metals Symposium

MEMBERS of the Society and others who wish to submit written discussion of the five papers comprising the Symposium on High-Strength Constructional Metals, held as the technical feature of the Pittsburgh Regional Meeting on March 4 (see page 2), are requested to submit copies of their discussion in duplicate as soon as possible. It is planned to receive discussion until April 20.



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Important Actions at Textile Meeting

THE series of meetings of Committee D-13 on Textile Materials were held in Washington, March 11-13 inclusive, with a number of important actions being taken, both with respect to expanding the committee's work and in connection with the current program. At the papers session on Thursday afternoon the principal topic was wool. The following four papers were presented:

Buying Raw Wool on The Scientific Basis—Werner Von Bergen, Chief Chemist, Forstman Woolen Co.
Scientific Breeding of Sheep—J. I. Hardy, U. S. Department of Agriculture, Wool Division
Sizing and Finishing of Textile Fabrics—F. G. LaPiana, Textile Technician, Stein, Hall & Co.
The Wearability of Silk Dresses—Mary C. Whitlock, Assistant Professor of Home Economics, University of Illinois

At the dinner on Thursday evening, Dr. H. E. Howe, Editor, *Industrial and Engineering Chemistry*, was the principal speaker.

A Symposium on Ginning was sponsored at its meeting by the Subcommittee on Cotton, comprising the four technical papers, listed below, by technologists of the Bureau of Agricultural Economics and Engineering, U. S. Department of Agriculture:

Problem Groups in Cotton Quality Research; Factors and Elements in Cotton Yarn and Fabric Quality—R. W. Webb, Senior Cotton Technologist
Some Mechanical Elements Involved in Cotton Ginning—C. A. Bennett, Senior Mechanical Engineer
Some Cotton Quality Elements as Influenced by Ginning—F. L. Gerdes, Associate Cotton Technologist
Neps and Other Imperfections in Cotton—Norma L. Patterson, Assistant Cotton Technologist

One of the important decisions reached at the meeting was to organize a new subcommittee on household and garment fabrics, plans for which are under way. The functions of this group are to be limited strictly to the development of standard test methods and specifications for piece goods and test methods for finished articles. The committee has given careful consideration to this step and its decision to proceed resulted from repeated requests from home economists for assistance in the development of accurate means of evaluating these fabrics.

The subcommittee on jute, ramie and linen was reorganized. This group has devoted its activities in the past to sugar bags and the section on this subject is to be discontinued with the formation of three new sections respectively on fibers, yarn and fabricated products.

The decision was made to extend the committee's work to include the establishment of standard specifications and test methods for textile chemicals. The subcommittee on bleaching, dyeing and finishing was requested to assume this work as one of its major programs.

The subgroup on light and medium weight fabrics recommended revisions in the Standard Methods of Testing and Tolerances for Certain Light and Medium Cotton Fabrics (D 274—34) and in the Standard Specifications and Methods of Test for Cotton Goods for Rubber and Pyroxylin Coating (D 334—34) to bring them in closer conformity with the Worth Street Rules, 1936. The proposed revisions involve the reclassification of the fabrics and the incorporation, as tentative, of Specification G of the Worth Street Rules to apply to certain fabrics covered by these two A.S.T.M. specifications.

Other recommendations included complete revision of the standards covering General Methods of Testing Woven Textile Fabrics (D 39—34), Methods of Testing and Tolerances for Cotton Yarns, Single and Plied (D 180—33) and for Cotton Sewing Threads (D 204—33).

The committee's program of activities includes the following: Development of microscopical methods for the quantitative analysis of fiber mixtures which cannot be analyzed by chemical or mechanical procedures; lopp and evenness tests for cotton yarn; specifications for yarn made from wool mixed with other fibers; fading standards and methods of testing wear for pile floor coverings; sulfuric acid method for analysis of cotton-wool mixtures.

New Committee on Paper

PREVIOUS BULLETINS have mentioned the Executive Committee's decision to proceed with the organization of a standing committee on paper and as a result of certain conferences, progress has been made in laying the ground work for the development of the committee. Roger C. Griffin, Director of Tests, Arthur D. Little, Inc., is serving as temporary chairman of the committee and an organization committee to develop the new standing committee has been selected comprising the following:

Roger C. Griffin, *Chairman*
W. E. Emley, Chief, Division of Fibrous and Organic Materials, National Bureau of Standards
C. C. Heritage, Technical Director, Oxford Paper Co., representing the Technical Association of the Pulp and Paper Industry
B. M. Kimball, General Manager, Gilman Paper Co.
J. D. Malcolmson, Robert Gair Co.
H. J. Skinner, Skinner and Sherman
B. S. Van Zile, Chemist, Colgate-Palmolive-Peet Co.

There has been an increasing use of paper and paper products for certain purposes in the engineering field including applications in electrical insulation, cement bags, roofing felts, gum tapes, containers, etc., and these products are assuming increasing importance to the engineer concerned with industrial application. Certain of these materials have been considered in A.S.T.M. committees, notably, paper for electrical insulation. One of the important services which it is believed A.S.T.M. can render in connection with the extension of its activities to the problems of testing and specifications for paper is to engage the interest and participation of the consumer of paper and paper products. This will be effected through the usual method of organizing the standing committee with producers, consumers and general interests properly represented on the committee.

In this work the Society has been assured by the officers of the Technical Association of the Pulp and Paper Industry of their interest and support in the work. The organization committee is planning to meet in Boston in the near future, and as developments warrant they will be announced in the BULLETIN.

While the scope of the committee will be developed by the organization committee, it is expected that the new standing committee will review existing methods of test, undertake preparation of specifications for paper and paper products for which there is particular need, starting with such special uses as are mentioned above, and develop and standardize new test methods as may be required.



IX. Long-Time Society Committee Members

Ninth in the Series of Notes on Long-Time Members

CONTINUING the series of notes on the work of long-time A.S.T.M. members, there are given below outlines of outstanding activities of three members. In general the men included in this series have been affiliated with the Society for 25 years or more and have taken an active part in committee and other Society work.

J. C. RAMAGE, Engineer of Tests, Southern Railway Co., is a graduate of Cornell University, class of 1890. For the period 1890-1896 he was Materials Inspector with the Baltimore & Ohio Railroad and since that time has been in his present position. Mr. Ramage has been a member of the Society since



A. N. Johnson J. C. Ramage Sanford E. Thompson

1904, first as an individual member and later as the representative of his company.

He has followed closely the activities of a number of A.S.T.M. committees and at the present time is a member of seven of these. He has served on Committee A-2 on Wrought Iron and A-1 on Steel since 1912 and 1916 respectively. A member of Committee A-3 on Cast Iron since 1916, he also holds membership on Committee A-7 on Malleable Iron Castings and has been a member since 1918 of Committee B-2 on Non-Ferrous Metals and Alloys. His earliest committee affiliation, however, is in connection with his work on D-1 on preservative Coatings, of which he has been a member since 1911. He is also on Committee D-8 on Bituminous Waterproofing and Roofing Materials, his membership dating from 1924.

From 1932 to 1934 Mr. Ramage served as a member of the A.S.T.M. Executive Committee.

SANFORD E. THOMPSON, President, The Thompson & Lichtner Co., Inc., Boston, graduated from Massachusetts Institute of Technology in 1889. After several years' service in various engineering capacities in hydraulic engineering and factory construction and operation, he became associated with Frederick W. Taylor, who is called the "Father of Scientific Management," in the scientific analysis of construction methods and costs. Beginning in 1905 he established an engineering practice in management, research and construction which led to the formation of his present company, which is a corporate member of the Society represented by Miles N. Clair, Vice-President. Mr. Thompson has been a personal member of the Society since 1904. In that year he became a member of Committee C-2 on Reinforced Concrete and he or his company has been represented on the committee until it was discontinued in 1934.

One of Mr. Thompson's outstanding services for the Society was in connection with the formation of Committee C-9 on Concrete and Concrete Aggregates in 1914 in which he took a leading part. He was the first chairman of the committee serving until 1922 and has retained membership continuously. He was a member of Committee D-4 on Road and Paving Materials, 1912-1921, and following his personal membership on Committee C-1 on Cement which began in 1919, he or his company has been represented since that time.

An outstanding authority in the field of concrete, he, in 1908, with W. B. Fuller presented a paper before the A.S.C.E. on "The Laws of Proportioning Concrete" which was based on an extensive series of tests he carried out in connection with the construction of Jerome Park Reservoir in New York City, one of the earliest investigations leading the way to scientific grading and designing of concrete on the basis of density. With the cooperation of F. W. Kelley, member of Committee C-9 at the time and later president of the Portland Cement Assn., Mr. Thompson organized a number of research projects under the sponsorship of Committee C-9, this work resulting in the development of the water-cement ratio law and the colorimetric test for impurities in sand.

Mr. Thompson is a member of a number of national societies, is an honorary member of the American Concrete Institute and a past-president of the Taylor Society. He was commissioned Lieutenant Colonel during the World War, serving as head of the Progress Section under the Chief of Ordnance.

A. N. JOHNSON, Dean, College of Engineering, University of Maryland, received his technical education at Harvard, graduating with the degree S.B. in C.E. in 1894, and in 1924 received the Doctor of Engineering degree from the University of Maryland. He served as Instructor at Harvard, was Assistant Engineer, Calumet and Hecla Mine, Assistant Engineer, Massachusetts Highway Commission and from 1898 to 1905 was State Highway Engineer of Maryland. He served as Chief Engineer, U. S. Bureau of Public Roads, 1905, and 1906-1914 was State Highway Engineer of Illinois. After serving as Consulting Highway Engineer for the Portland Cement Assn., he, in 1920, went to the University of Maryland in his present capacity.

Dean Johnson has been a member of the Society since 1903. He was one of the members of Committee D-4 on Road and Paving Materials when it was organized in 1903 and has been a member continuously since that time. He was the first secretary of the committee serving until 1908. From 1927 to 1933 he served on Committee E-6 on Papers and Publications.

In 1930 he was appointed chairman of the committee on selected standards for students which was charged with the task of preparing a special compilation of the Society's standards which could be used as a text or for reference in courses given in engineering curriculums, particularly in testing laboratory instruction. This compilation has been widely distributed and is in use in a great many of the leading technical and engineering schools.

Dean Johnson is a member of a number of associations—he is interested in the work of the American Society of Civil Engineers, International Road Congress and the Highway Research Board of the Highway Research Council.



Committee Week

(continued from page 4)

telegraph line wire (A111—33), steel strand (A122—33), and chain link fence fabric (A117—33) are being revised to bring them more strictly in line with present manufacturing practices and to include such improvements as recent advances have made commercially available.

The committee's program for the outdoor testing of zinc-coated wire and wire products is rapidly nearing completion and it is expected that the actual erection of test samples on the racks will have been completed by October 1, 1936. In these tests, bare and coated plain wire, farm fencing, barbed wire, chain link fencing and strand will be exposed at twelve locations throughout the United States from east coast to west and from northern New York state to Texas. Also included in the tests are plain wires and fences made from stainless steel, copper-clad and lead-coated steel wires.

Committee A-6 on Magnetic Properties

In the magnetic testing at very low inductions of material which is to be used for the cores of radio and communication transformers, difficulty arises because after demagnetization a considerable change may occur in the magnetic properties, continuing over a period of hours or days. The committee plans an extensive research program to determine means of minimizing the variability due to this effect, either by reducing the change in magnetic properties by suitable treatments or by the adoption of some procedure which will insure reproducible results.

A new joint in the magnetic circuit called the double lapped joint is being considered. This gives more reproducible results, and in some cases more accurate results, than can be obtained with the butt or with the alternate butt and lap joint.

The committee plans to recommend the approval of an a.c. high induction test value of 15 instead of 14 kilogausses, since this higher induction corresponds more nearly to values used in power transformers and in cores of rotating machines, and also corresponds better to European practice. The test at this higher induction involves certain precautions which were not necessary at 14 kilogausses; therefore, new test methods have been prepared. A recommendation is to be made that the 5 kilogram sample be put on a par with the 10 kilogram sample since a very large tonnage of material is regularly accepted on the basis of tests on the smaller weight sample. For the 15 kilogauss test this involves a new set of coils having a smaller cross-section than the standard coils for the 10 kilogram sample.

Committee A-7 on Malleable Iron Castings

Through its subcommittees on galvanizing embrittlement and specifications for malleable castings for flanges, pipe fittings, and valve parts, Committee A-7 has continued its study of galvanizing embrittlement as related to malleable iron. The development of specifications for cupola malleable iron is being continued actively.

The committee is interested in having available standard samples of two hard irons, one of air-furnace and the other of cupola iron, and hopes to make arrangements for the preparation of these two samples for the industry.

Research Committee on Fatigue of Metals

This committee reviewed various comments resulting from the 1935 report of the committee in which there was presented

a set of notes on the rotating-beam test for fatigue strength, covering tests on machines either of the centrally loaded or the cantilever types.

A progress report was presented covering the cooperative studies on the part of Committee E-4 on Metallography and the Fatigue Committee involving X-ray diffraction studies and their relation to fatigue test results. While no clear correlation has as yet been shown, the study is progressing. It was indicated that long-time tests are necessary to enable definite conclusions to be drawn.

There was discussion of the progress made in the study of the effects of occasional high overstress on subsequent resistance to repeated working stresses and reports of work in this study were submitted from several laboratories.

New types of testing machines for fatigue tests were discussed. These new machines included high-speed machines (10,000 cycles of stress per minute), machines for repeated loading of large specimens of full size structural and machine parts, and machines for testing wire under reversed stresses.

Methods of detecting fatigue cracks when they were still very small were discussed, including tests using magnetized iron dust, etching and direct microscopic examination. Differences in reporting results of fatigue tests by English laboratories and by American laboratories were indicated.

Joint Conference on Electroplating

The joint committees on electroplated coatings, sponsored jointly by the American Electro-Platers' Society, National Bureau of Standards and A.S.T.M., considered a number of comments that had been received on the three specifications published last year, covering electrodeposited coatings of zinc, cadmium, nickel and chromium on steel. Discussion at the meeting indicated that the salt spray test is not especially useful for testing zinc and cadmium coatings but that a test to distinguish between good and poor coatings of the same thickness would be desirable. Purity of the coatings might also be specified. It was the sense of the meeting that while the present symbols in the specifications are satisfactory, consideration could be given also to a designation based on the specified thickness, for example, "zinc 50" would refer to a zinc coating with a minimum thickness of 50/100,000 of an inch.

While thicker coatings than those specified in the requirements are occasionally required, the meeting felt that at present there was not sufficient demand for thicker coatings to justify action on this matter. Consideration of the present requirements calling for an average of 0.00002 in. of chromium indicated that this is not excessive for the automotive industry.

The specifications at present require a minimum of 0.00015 in. zinc which is usually equivalent to an average of about 0.0002 in. and the committee felt that this is probably adequate for mild exposures. Based on consideration of the comments received, the committee recommends that the specifications be continued as tentative standards for another year without change.

There was detailed discussion of the program of exposure tests of plating on non-ferrous metals. The status of the program and the preparation of specimens to be included in the series of tests were reviewed. The principles of the chord method for measuring thickness were outlined and a few pre-



liminary results of the quantitative measurement of adhesion of electroplated coatings were presented to the committee. Arrangements are under consideration for the periodic inspection of the specimens.

Committee B-1 on Copper Wire

During its meeting this committee discussed at length certain modifications that were proposed in the Tentative Specifications for Bare Stranded Copper Cable: Hard, Medium-Hard or Soft (B 8 — 35 T), particularly with regard to the section on brazes. (These specifications cover bare, stranded cables made from round copper wires, for general use as electrical conductors.)

The committee also considered a proposal to recommend the adoption as standard of the existing Tentative Specifications for Bronze Trolley Wire (these specifications cover round and grooved bronze trolley wire) and to adopt the existing tentative revision of the Standard Specifications for Copper Trolley Wire (B 47 — 32) which cover round and grooved hard-drawn copper trolley wire. This revision essentially comprises changes in the permissible variations of the dimensional requirements in the standard sections of the grooved trolley wire.

After discussion of the committee's title, the following was adopted as more adequately designating the scope of its work: Committee B-1 on Copper and Copper Alloy Wires for Electrical Conductors.

Committee B-5 on Copper and Copper Alloys

New proposed specifications have been completed covering commercial sheet and slit edged strip phosphor bronze, which material is commonly used for drawing, forming, stamping and bending, particularly in the making of spring devices for electrical apparatus. The specifications cover four grades of sheet phosphor bronze in six different tempers. Also completed were new specifications covering copper nickel condenser tubes. It is planned to submit these for approval as tentative.

The four A.S.T.M. tentative specifications covering copper-silicon alloys have been thoroughly reviewed and revisions have been completed in three of the specifications covering copper-silicon alloy plates and sheets (B 96 — 34 T), sheet copper-silicon alloy (B 97 — 34 T) and copper-silicon alloy wire (B 99 — 35 T). Further study will be given desirable modifications in the Tentative Specifications for Copper-Silicon Alloy Rods, Bars and Shapes (B 98 — 34 T).

Committee B-5 through its Subcommittee on Cast Metals and Alloys, in cooperation with representatives of the American Railway Engineering Association and the American Association of State Highway Officials has made a thorough study of requirements for cast bronze bearing metals and a new specification has been prepared covering four classes of bronze castings for turntables and movable bridges. It is proposed to discontinue the existing standard specifications.

The committee has considered in detail specifications for bronze castings for locomotive and journal bearings and plans to report revised specifications covering lined journal bearings and for bronze bearings for locomotives to replace the Society's existing specifications B 66 — 28 and B 67 — 28. These new specifications will conform to the corresponding specifications of the A.A.R., Mechanical Division. The committee is taking action to recommend the adoption as standard of the Tentative Specifications for Copper-Base Alloys in

ingot form for sand castings (B 30 — 32 T), and the adoption of revisions in four standard specifications for various types of sand castings.

The Standard Specifications for Yellow Brass Sand Castings for General Purposes (B 65 — 28) are to be revised and reissued as tentative specifications. In preparing this revision the committee has been guided by the fundamental principle that the chemical requirements constitute merely a guide to the type of alloy and the physical requirements shall govern acceptance of castings. Likewise, the existing Specifications for Manganese-Bronze Ingots for Sand Castings (B 7 — 27) and for Manganese-Bronze Sand Castings (B 54 — 27) are to be revised and recommended for publication as tentative standards.

Committee B-6 on Die-cast Metals and Alloys

The committee plans to continue as tentative for another year the Specifications for Aluminum-Base Alloy Die Castings (B 85 — 33 T) with certain changes to be incorporated involving the dropping of alloy No. VI, modification of the composition of alloy XII and changes in the tables of properties. Accelerated corrosion tests on alloys IV, V and Va have been completed and physical tests made. The data, which will appear in the committee's annual report, cover a year's exposure to salt-spray tests.

As a result of discussion of the advisability of including physical test data in the Tentative Specifications for Lead and Tin-Base Alloy Die Castings (B 102 — 35 T), the subcommittee in charge will be asked to conduct tests to determine the strength, hardness, and aging properties of the alloys, the tests to extend over a period of three years. The committee is planning to undertake exposure tests on magnesium-base alloys similar to the original atmospheric tests of aluminum- and zinc-base alloys.

With its 1936 report the committee plans to include a paper covering details of methods for finishing zinc and aluminum-base alloy die castings. Two types of electroplating of zinc die castings will be described and the preparation of casting surfaces and methods for application of lacquers, enamels, japans, etc., with data for other miscellaneous finishes applied to zinc die castings are to be included. Discussion in connection with aluminum-base alloys will cover the finishing methods involving polishing, electroplating, enameling and anodic oxidation. The paper will also detail methods of control, inspection and testing of various finishes.

Committee B-7 on Light Metals and Alloys

This committee has prepared a new specification for magnesium-base alloy bars, rods and shapes, which it is planned to submit for approval as a tentative standard.

A thorough study and review of all the tentative specifications under its jurisdiction has been made and changes are to be recommended in several specifications covering aluminum-sheet, plate, aluminum-base alloy sand castings, bars, rods and shapes and magnesium-base alloy sand castings, sheet, forgings, and ingot for remelting. In the magnesium-base alloy specifications the changes involve more stringent requirements on impurities and will also provide for the introduction in the specifications for magnesium-base alloy sand castings of properties for Alloy No. 4 in the heat-treated condition. It appears that this alloy will be the most widely used composition of this type. It is reported to have excellent corrosion-resisting properties.



Committee C-1 on Cement

The present Tentative Specifications for High-Early-Strength Portland Cement (C 74 — 30 T) are to be changed to comply with certain revisions recently approved by the committee, and it is planned to recommend the specifications, as revised, for adoption as standard. The revisions involve: Changes in the wording of the definition; replacement of the present fineness requirement by a specific surface requirement; and provision for optional strength tests—the present standard tensile test and a compressive strength determination on 2-in. mortar cubes.

Announcement was made that favorable letter ballot had been cast by C-1 on the recently proposed specification for High-Early-Strength Treated Portland Cement and that accordingly, such specification will be recommended to the Society at the June meeting for adoption as a tentative standard. The standard is practically identical with the above mentioned revision of C 74 — 30 T, except that provision is made for limited amount of additions, subsequent to calcination, of other materials than calcined or uncalcined natural gypsum or anhydrite.

Consideration was given to a suggested specification for blended cements and copies of this will be distributed to the committee members for study. There was also discussed a tentative draft of a revised specification for natural cement.

The subcommittee studying the subject of volume change and soundness of portland cement described the tests now in progress and expressed the desire that other laboratories which have accumulated data on accelerated soundness tests make this information available to Committee C-1.

Committee C-7 on Lime

At the meeting of Committee C-7 new tentative specifications for hydraulic hydrated lime were submitted and are to be recommended for approval as tentative. Hydraulic lime has long been used in Europe for construction purposes and certain American manufacturers are now prepared to produce it for the domestic markets.

Methods of testing lime for soundness were discussed at length and the proper subcommittees instructed to investigate and report on the methods suggested with a view to adopting an appropriate, simple test method. The committee deems it desirable to establish specification requirements for prepared fibred lime plaster and the subcommittee on structural lime was instructed to proceed with the preparation of specifications.

A subcommittee on nomenclature and definitions was established and instructed to make a study and report on definitions applying to lime and lime products.

Proposed revisions of the Federal Specifications for Masonry Cement SS-C-181 were discussed at length and a special committee was instructed to prepare a report outlining recommendations for their improvement.

Committee C-9 on Concrete and Concrete Aggregates

Prof. Arthur N. Talbot, University of Illinois, was unanimously elected Honorary Chairman of Committee C-9 in recognition of his eminent service and contribution to the work of the committee.

An extensive study of concrete nomenclature has been made and new definitions have been prepared for the terms "admixture," "blast furnace slag," "crushed stone," "gravel," "crushed gravel" and "fineness modulus," which are to be

presented to the Society for publication as tentative definitions.

The committee has completed a new tentative method of flexure testing of concrete which makes use of the third point loading method and is in conformity with the method of the American Association of State Highway Officials. This method is to be recommended to replace the existing Tentative Laboratory Method of Making Flexure Tests of Concrete Using a Simple Beam with Center Loading (C 78 — 30 T).

Action was taken at the meeting to recommend the adoption as standard of several tentative standards. These cover: Sodium silicate for curing concrete, structural strength of fine aggregate, absorption by aggregates (laboratory determinations), field test for absorption of mixing water by aggregates, and compression tests of concrete using portions of beams broken in flexure.

For some time the committee has been studying tests for deleterious substances in aggregates and has completed a new method of test for the determination of coal and lignite in sand which is to be proposed as a new tentative standard.

Action was taken to recommend the inclusion in the annual report of the committee this year of a paper on "Studies on Relation Between Characteristics of Blast Furnace Slag and Other Coarse Aggregates and the Properties of the Resultant Concrete" by Fred Hubbard, Consulting Engineer, The Standard Slag Co., Youngstown, Ohio.

Committee D-1 on Preservative Coatings

Because of the active work on soybean oil by the Farm Chemurgic Council, it is considered desirable to leave the Tentative Specifications for Raw Soybean Oil (D 124 — 33 T) as they now stand and await developments during the coming year. The very large quantity of soybeans now being grown in America may introduce some factors which should be given careful consideration before advancing this specification to standard.

The Standard Specifications for Perilla Oil (D 125 — 23) are to be continued as standard without change, since no requests for revision have been received. There appears to be a greater interest in perilla oil and an increased use of this material during the past year or two has been evident. Doctor Gardner, chairman of the subcommittee responsible for the specifications has obtained three species of perilla from abroad and contemplates some active planting experiments during the coming year in many sections of the country. Because oiticica oil more nearly approaches tung oil in its properties than any other vegetable oil, active study of this material is being considered.

A very extensive program on accelerated testing of paints, varnishes and lacquers is being carried on by operators in many sections of the country. As the work progresses, new and valuable information is constantly being developed and it is hoped that test methods will be developed to enable laboratories to predict within a limited time, the probable performance and life of a paint, varnish or lacquer coating.

The committee has been actively studying improvements in and new methods of analysis of paint materials. An endeavor is being made to improve the present Tentative Method of Test for Comparative Hiding Power of Paints (D 344 — 32 T), with consideration to such important questions as geometric design of the background of test panels, brightness tolerances to be allowed, effect of varying spreading rates of



the paints on the hiding results, and availability of paper charts for brush-out tests. A new method of test for the hiding power of paints, working at incomplete hiding, and on a dry film basis is nearing completion.

A revision for publication as tentative of the Standard Method of Routine Analysis of Dry Cuprous Oxide (D 283 — 33) was also accepted.

Studies are being conducted on methods for determining the reactivity of varnish, using in one instance, green seal zinc oxide, and in the other, a zinc oxide paste ground in alkali refined linseed oil. Several types of varnish vehicles are being examined, noting the consistency of the enamel when first made and after storage for a given length of time.

Investigation of the effect of temperature, humidity and other factors upon the physical properties of varnishes, has progressed during the past year and a study of methods for evaluating failure of varnishes upon exposure is nearly completed and it is planned to propose a standard method for evaluating failures in clear varnishes. A method for the determination of color of varnishes is one of the subjects upon which considerable work is being done.

The work on shellac and shellac varnish has included cooperative tests carried out on the Angelo color method to determine possible variations in results of different operators, and reasons therefore. It is the thought of the subcommittee interested in the subject of shellac, to consider the development of a suitable method for determining water-soluble material in shellac varnish.

The subcommittee responsible for tests for physical properties of materials is carrying on work of a very fundamental nature. Its aim is to write a definition of Gloss that will be sufficiently precise to be acceptable to science, and so worded as to be clearly understood and of use to industry; to investigate the relative merits of all instruments and apparatus that are commercially available, upon which satisfactory gloss determinations can be made; and to obtain such information as may, through cooperative effort, lead ultimately to the development of a satisfactory gloss specification and method of test. Fourteen manufacturers of paints and lacquers are cooperating to the extent of providing representative samples of Gloss, Eggshell and Flat finishes. These samples are being measured for degree of gloss, polish and image reproducibility on two types of instruments.

In view of the fact that work on nitrocellulose and on solvents has been practically concluded, and that there is no program of work under way on the subject of finished lacquers, it is planned to furnish a questionnaire to a number of interested parties, in addition to those forming this group, with a request for subjects that might properly be developed as projects for further work. Suggestions have already been made that work be undertaken on the development of specifications for additional plasticizers, such as dibutyl phthalate and dimethyl phthalate; development of method for testing evaporation ratio of solvents and also determination of dilution ratio; investigation of latent solvent power as of alcohols; and a study of tests for application to finished lacquers.

The present classification and nomenclature of certain zinc pigments has been subjected to careful study, and certain changes are being recommended to Committee D-1. A study is being made of certain earth pigments, with a view to standardizing on color and standard samples are being prepared composed of ceramic tile.

Committee D-1 is planning to recommend the adoption as standard of a number of its tentative specifications and tests including those covering the following: Tinting strength of white pigments and dry color pigments, amyl acetate, industrial 90 per cent benzene, industrial pure toluene, tricesyl phosphate, industrial xylene or solvent naphtha, titanium dioxide, high zinc sulfide lithopone, and zinc sulfide.

Committee D-2 on Petroleum Products and Lubricants

Action was taken at the meeting to recommend the adoption as standard of the existing Tentative Method of Test for Viscosity by means of the Saybolt Viscosimeter (D 88 — 35 T) and it was decided to conduct further work to improve the accuracy of this method. This was issued in 1935 to define more closely the procedure for determining viscosity with the Saybolt instrument and is intended to supersede when adopted the present Standard Methods (D 88 — 33). Committee D-2 plans to have published as information the procedures for the determination of kinematic viscosity by means of suspended-level and modified Oswald types of instruments.

In 1935 there was published as information a proposed method of test for oxidation number of lubricating oils by the Sligh method. This was based on the procedures used by a number of the cooperating laboratories which undertook tests to obtain data on the reproducibility obtainable with this oxidation test. The subcommittee in charge decided to continue development of the method and to conduct cooperative tests at the National Bureau of Standards in order to eliminate sources of error in the present method.

As the result of action at the meeting, the Bureau of Standards will be requested to recalculate the data furnished in group number 0 in the Standard Abridged Volume Correction Table for Petroleum Oils (D 206 — 34).

Technical Committee A on Gasoline was authorized to form a new subcommittee charged with the development of a method for the determination of the lead tetra-ethyl content of gasoline. The discussion of the development of gasoline specifications was largely limited to sulfur requirements and the establishment of seasonal and geographical limits to be applied to the expression of vapor pressure specifications.

Technical Committee C discussed a number of proposed changes in the present tentative specifications for fuel oils, with no formal action being taken.

Committee D-4 on Road and Paving Materials

In 1935, Committee D-4, in cooperation with Committee D-8 on Waterproofing and Roofing Materials, recommended that the tables designated as Groups 0 and 1 in the Standard Abridged Volume Correction Table for Petroleum Oils (D 206 — 34) be tentatively approved as a Volume Correction Table for Asphaltic Products since these tables were being commonly used in the asphalt industry. The committees are now planning to recommend the adoption as standard of these two groups of tables. Action was taken also to recommend that the Tentative Method of Test for Residue of Specified Penetration (D 243 — 35 T) be adopted as standard.

The committee has been studying the test methods and apparatus for testing bituminous road materials. A review of the Tentative Method of Test for Separation of Liquid Asphaltic Products (D 402 — 34 T) has shown that the condenser used in the distillation assembly needs to be modified so that its manufacture may be more practicable. A more com-



plete description of the type of vent holes that it is permissible to use in the oven of the Standard Method of Test for Loss on Heating of Oil and Asphaltic Compounds (D 6 — 33) will be recommended for immediate adoption in this standard method.

Committee D-4 also received for consideration the revised method of test for softening point by ring-and-ball method which has been prepared by a special subcommittee on this subject of A.S.T.M. Committee E-1 on Methods of Testing. This method was presented as a revision of and is intended to replace the present Standard Method of Test for Softening Point of Bituminous Materials (Ring-and-Ball Method) (D 36 — 26) which was prepared originally by Committee D-4. The scope of the revised method has been enlarged so that the test will now be applicable to rosin and resins, both synthetic and natural, as well as to asphalts, tars, pitches and similar bituminous materials.

In view of the interest that is being shown in methods for the measurement of viscosity the committee has undertaken a study of several types of apparatus for determining absolute viscosity. This work will include a study of apparatus and methods for the complete range of bituminous materials.

Committee D-5 on Coal and Coke

Considerable data were presented covering check determinations of coal ash fusibility by the Barrett coal-ash fusion furnace and by the gas furnace specified in the A.S.T.M. requirements. These data proved to be sufficiently promising, in the opinion of the committee, to justify further investigation with a view to acceptance of this new furnace as permissible equipment in the standard method of test.

The committee recommended the adoption by the Society of the term "Calorific Value" as a standard term to express heat of combustion of fuels.

Gratifying progress was reported in the development of methods of testing friability of coal, that is, its resistance to breakage on handling. Two methods are under consideration, one is a drop test method similar to the shatter test method for coal. By this method a large sample can be used. The other is a tumbler jar method adaptable for testing samples of 1000 g. in weight, which makes use of equipment now available in most coal testing laboratories. The methods under consideration have been published by the Canada Department of Mines, Publication No. 762 (1935).

The formulation of a mechanical method for crushing and reducing gross samples of coal to a convenient size for transmittal to the laboratory is progressing. Mechanical reduction of coal samples is coming into general use by large consumers of coal since the standard hand method is expensive; the mechanical method is rapid and is thought to be less liable to personal errors.

A proposed method for determination of dustiness of coal and coke was presented for discussion by a subcommittee. Dedusting of coal and coke is increasing rapidly. In connection with the development of small domestic stokers which burn the smaller sizes of coal, it is desirable to dedust the coal so the householder will have a clean fuel and a test method will be of help in evaluating the efficiency of different oil compounds and chemicals used for dedusting.

Committee D-8 on Waterproofing and Roofing Materials

This committee received for consideration the revised method of test for softening point by ring-and-ball method

which is of interest in the testing of the bituminous waterproofing and roofing materials under its jurisdiction. As indicated (see Committee D-4) this method, which was prepared by Committee E-1, is suitable for the testing of asphalts, tars, pitches, etc. In general, with materials of this type, softening does not take place at a definite temperature. As the temperature rises, these materials gradually and imperceptibly change from brittle or exceedingly thick and slow-flowing materials to softer and less viscous liquids. For this reason, the determination of the softening point must be made by a fixed, arbitrary and closely defined method if the results obtained are to be comparable. Committee D-8 has prescribed the use of the ring-and-ball method in testing certain of the materials for which it is responsible and plans to study this enlarged and improved test.

The committee has been conducting tests on methods of sampling and procedures for sieve analysis of talc, ground mica and roofing granules. This work has resulted in the preparation of proposed test methods for sampling and for sieve analysis of mineral granules, and procedures for the sampling and sieve analysis of powdered mica and talc. The test procedures are to be published in the annual report of Committee D-8 as information and it is expected will be presented to the Society during the year for publication as tentative. The committee has also been studying various methods for determining the adhesion of roofing granules to asphalt coatings in order to obtain information as a basis in the preparation of a standard test procedure. A report of the cooperative tests on three different methods for determining embedded mineral granules in asphalt coatings on roofing was presented to the committee.

Other projects now under development include the formulations of methods of test for bituminous coatings for cold application, accelerated weathering tests of bituminous materials, revision of the analytical test for membrane materials, further changes in the roofing specifications to include criteria for satisfactory filling materials, and additional tests for bituminous emulsions.

Committee D-11 on Rubber Products

At its meeting the committee completed plans for a group of technical papers, to be presented at the Society's annual meeting in Atlantic City in June, which will comprise a Symposium on the subject of "The Limitations of Laboratory and Service Tests in Evaluating Rubber Products." (See page 1.)

The specifications and test methods which were recently published in a special volume of "A.S.T.M. Standards on Rubber Products" were thoroughly reviewed and some changes decided upon. In the Standard Methods of Chemical Analysis of Rubber Products (D 297 — 32) the short procedure is to be brought into conformity with the long test procedure and other revisions will affect the determinations of total sulfur and carbon as well as the analysis of hard rubber. In the Tentative Methods of Tension Testing of Vulcanized Rubber (D 412 — 35 T) instructions for calibration of testing machines will be included and the number of required test specimens will be reduced in cases of inspection tests where minimum values have been established.

Several revisions were approved in the Tentative Methods of Test for Accelerated Aging of Vulcanized Rubber (D 428 — 35 T). It was decided to amplify the present



Tentative Method of Test for Compression Set of Vulcanized Rubber (D 395 — 34 T) which involves the use of constant load by adding an alternative method using constant distortion and also to provide for use of cylindrical instead of rectangular test specimens.

The committee has been making an extensive study of a method for testing the effect on rubber compounds of air at elevated pressure and temperature. This test which is commonly known as the air bomb aging test is assuming increasing importance for service evaluation of rubber compounds designed to resist heat and oxidation. It is particularly applicable and widely used for such products as inner tubes for truck tire service. Reports which were received from 22 laboratories showed that this test was being employed in various forms by 18 of the laboratories and, because of the obvious importance of this method, it was decided to proceed at once with the preparation of a standardized procedure covering present practice and at the same time to initiate a program for extensive investigation of the test looking toward its improvement and further standardization.

Another survey was reported covering the use of the existing Standard Specifications for Rubber Gloves for Electrical Workers (D 120 — 23). As a result of this survey, some suggested changes are to be studied.

Results were reported to the committee of an extensive cooperative test program on insulating tapes in which it was found that the testing methods for rubber tape apparently give results that are more indicative than do corresponding tests for friction tape. In consequence, further study will be made of the latter.

Consideration has been given by the committee during the year to securing better standard rubber specimens, having certified and tested properties, for use as a reference base in methods of testing rubber products. Results were reported of studies made in a single laboratory and since they give much encouragement to the project, it was decided to continue the work extending the program to include several laboratories.

The subcommittee on insulated wire and cable decided to reorganize into two main sections so as to carry on its work more effectively. To this end, the present sections on insulation resistant to acid, alkali and oil; corona-resistant rubber; saturants and finishes; and 60 per cent rubber sheath compound, were dissolved and replaced by new sections on (1) materials specifications and (2) test methods. Section 1 is to proceed at once to a consideration of revisions of the three existing Tentative Specifications for Insulated Wire and Cable: Class AO, 30 per cent Hevea Rubber Compound (D 27 — 35 T); Class A, 30 per cent Hevea Rubber Compound (D 393 — 34 T); and Performance Rubber Compound (D 353 — 35 T); and to develop new specifications covering tough jacket compounds and possibly heat-resisting insulation. Section (2) will devote its attention at present to methods of test for high-voltage compounds, for moisture absorption and for thickness measurement of rubber and braid insulation.

Committee D-15 on Thermometers and Laboratory Glassware

At its meeting Committee D-15 considered a number of suggestions with reference to improvements in thermometers and other apparatus used in Society methods.

There are two thermometers used in the test for steam emulsion of lubricating oils, one for the separating and emulsifying baths and the other for the oil container tube. Requirements for these thermometers are not prescribed in detail in the A. S. T. M. Standard Method D 157 and Committee D-15 has been requested to develop them for the steam emulsion thermometers.

In the revised method of test for softening point by ring-and-ball method prepared by Committee E-1 on Methods of Testing the range of the high softening point thermometer has been increased from 30 to 160 C. (85 to 320 F.) to 30 to 200 C. (85 to 392 F.). Committee D-15 will undertake the preparation of these detailed changes.

Recommendations for the improvement of the 25-ml. glass trap used in the determination of water in the tentative methods of testing Emulsified Asphalts (D 244 — 35 T) are also in preparation. Study is also being made of the dimensional requirements of the condenser used in the distillation test for separation of liquid asphaltic products (D 402 — 34 T).

The committee is also considering the type of thermometer most suitable for use in connection with the method for the quantitative determination of the distribution of particle size in soils as described in the Tentative Method of Mechanical Analysis of Soils (D 422 — 35 T). It appears that the thermometer covered by the Standard Specifications for A. S. T. M. Partial-Immersion Thermometer for General Use, —20 to +150 C., 0 to +300 F. (D 182 — 25) may be suitable for use in this test.

At its meeting, Committee D-15 gave consideration to the subject of specification requirements for glassware apparatus as related to accident hazards. Further information will, if available, be obtained by the committee to assist in the further consideration of this important subject.

Committee D-19 on Water for Industrial Uses

There were approved for publication as information only, methods of analysis of four ions, the carbonate, hydroxide, phosphate, and sulfate. These methods were originally developed by the Subcommittee on Water Analysis of the Joint Research Committee on Boiler Feedwater Studies and were referred to Committee D-19 for promulgation as standards. The methods have been edited so that they can be applied to water used generally in industry.

The program on sampling of water for industrial uses has advanced and considerable progress should be made during the coming year toward developing in greater detail the valuable information published in the 1935 report of Committee D-19 on the subject "Problems in the Standardization of Methods for Sampling Water for Industrial Purposes."

The group working on methods of analysis has under active discussion development of methods for the determination of chlorides, calcium and magnesium. Additional work of this group includes the further development of the dissolved oxygen method. In addition, methods of analysis are to be developed covering sodium ion and silica, and the determination of the hydrogen ion concentration.

Committee D-19 and the Joint Research Committee on Boiler Feedwater Studies will jointly sponsor a session at the 1936 A.S.T.M. annual meeting at Atlantic City on water for industrial uses, including several important papers of interest in this field. (See page 1.)



Sections of Committee E-1 on Methods of Testing

Several of the subdivisions of A.S.T.M. Committee E-1 on methods of Testing met in Pittsburgh during A.S.T.M. Committee Week and considerable progress was reported as a result of these sessions.

Calibration of Testing Machines

Testing machines for determining the strength of various materials of construction involve the measurement of very large forces, frequently as large as 100,000 lb. and sometimes as great as 4,000,000 lb. The determination of the continued accuracy of these machines is a matter of considerable difficulty and of great importance. It is evidently quite impossible to apply dead loads of such magnitude by means of standardized weights, and various other methods are in use, including the use of carefully measured levers in connection with standard weights and the use of very precisely standardized rings or other devices depending on the elastic change of form of metal bars or loops.

The E-1 section concerned with the standardization of such pieces of "proving apparatus" considered various proposed changes in the Tentative Methods of Verification of Testing Machines (E 4—35 T). Added provisions were recommended to improve the accuracy of such proving devices.

Effect of Speed of Testing

A survey of all references to speed of testing appearing in the various A.S.T.M. specifications and test methods was presented at the meeting of this section and discussed. This is to be used as a basis for correlation of speed of testing requirements. A most useful bibliography, covering references to effects of speed of testing, was presented by one of the committee members and arrangements were made to keep this bibliography up to date.

The committee accepted a definition of speed testing as being the rate of strain measured in inches per inch per minute for stresses within and above the elastic range. In order that the values may be measured conveniently, it was indicated that the rate of application of stress in pounds per square inch per minute may be substituted within the elastic range and speed of crosshead at higher stresses.

Elastic Strength

This section decided to refer to a special subgroup consideration of whether there should be specified in the Tentative Definitions of Terms Relating to Methods of Testing (E 6—35 T) some method of determining the yield strength corresponding to a very small amount of set (of the order of 0.003 per cent) for which the method as now specified is not entirely satisfactory. The committee recommended a change in the section covering proportional limit to point out that for certain grades of steel a special method of determining elastic strength is recognized in certain specifications of the Society.

In order to stress to the various A.S.T.M. committees formulating purchase specifications in which the yield strength properties may be involved that the permissible value of set must be specified by the particular committee, the attention of the chairmen of these specification writing committees is to be directed to this important point.

With the various changes recommended in the Tentative Definitions of Terms Relating to Methods of Testing

(E 6—35 T) the committee is planning to recommend their adoption as a Society standard.

Testing Thin Sheet Metals

This section at its meeting discussed at length various cupping tests. In order that the various opinions and comments, which have been obtained over a period of the last two years from widespread sources, may be reviewed conveniently, it was suggested that a report be prepared summarizing this information.

The committee considered the possibility of holding a conference or symposium on some phase of sheet testing at the 1937 A.S.T.M. annual meeting and is planning to get the opinion of all of the section members on this matter.

Indentation Hardness Testing

The Section of Committee E-1 on Indentation Hardness Testing has finished the preparation of a more complete series of Rockwell hardness scales which will cover all combinations of penetrators and test loads for inclusion in the A.S.T.M. Tentative Methods of Rockwell Hardness Testing of Metallic Materials (E 18—33 T). With the addition of these improvements to the methods they will be recommended to the Society for adoption as standard. The committee is also canvassing its membership and others interested in hardness testing to determine whether there is sufficient interest in superficial hardness testing to warrant work being undertaken on this subject. The committee has been studying the question of Rockwell hardness tests on other than flat surfaces and plans to solicit the cooperation of committees interested in pipe and tubing in furthering its studies on this subject.

Consistency, Plasticity, etc.

This committee is endeavoring to obtain the cooperation in its work of other organizations interested in the subject of consistency, plasticity, and viscosity of all engineering materials. It was decided to appoint a special group to ascertain the general opinion of the national engineering societies respecting the definition of viscosity and its representative symbol. There is an increasing interest being evidenced in the determination of absolute viscosity. To assist in the educational work that will be necessary in furthering this subject, the technical committee has decided to undertake the preparation of a report or statement respecting the fundamental conception and definition of absolute viscosity and the units by which it is expressed. It is also planned to include in this reference to the present standards used in viscosimetry.

Designation and Interpretation of Numerical Requirements

A new technical committee was organized last year by Committee E-1 to give consideration to the proper designation and interpretation of numerical requirements in A.S.T.M. standards. The committee has completed proposed recommendations which are to be presented to Committee E-1 with the proposal that they be published as information. They are intended to assist the various A.S.T.M. committees in the use of uniform terms and conventions in expressing the numerical requirements. The committee's aim is to outline practices which should aid in clarifying the intended meaning of limiting the tolerance values with which test values are compared in acceptance and rejection of material.



Student Memberships at City College

As the result of a decision to adopt Part II, Non-Metallic Materials, Book of A.S.T.M. Standards, as an official text in the course on technology of fuel, gas, water and lubricants, given in the curriculum of chemical engineering at the College of the City of New York, 24 students have availed themselves of the opportunity afforded by student membership to purchase copies of this part of the Book of Standards at the special student member's price. Arrangements for these new student memberships were made by Prof. C. A. Marlies, a Society member. Certain of the students are obtaining both parts of the Book of Standards.

This plan of using the Book of Standards in connection with engineering courses is in effect at Ohio State University and at Pratt Institute, and there are many other schools with engineering and technical courses where A.S.T.M. publications are used as texts or as references. In particular, the special compilations of standards are in widespread use.

The annual dues for student members are \$1.50. The student receives the Society Year Book, A.S.T.M. Bulletin, a choice of any one of the special compilations of standards (petroleum products, refractories, textiles, etc.), and he may obtain preprints. In addition, he can purchase other A.S.T.M. publications at greatly reduced prices. Obviously, it means a good deal to the Society to have future engineers become familiar with the importance and value of the Society's work in their undergraduate days and the widespread use of Society publications in technical schools and the increasing number of student members is encouraging.

Annual Tables of Constants

THE International Committee in charge of the publication of the Annual Tables of Constants including numerical data, chemical, physical, biological and technological, has furnished the A.S.T.M. library with a copy of the first part of Vol. X, containing the extensive information compiled in 1930. This volume as well as the preceding ones of this valuable series may be referred to by the members.

These extensive publications are issued under the patronage of the International Council of Scientific Unions and the International Union of Chemistry. The tables list all important measurements published in the technical literature during the respective years which they cover. They are listed in the tables with reference to the original sources.

Although the tables are published in France, the information is published in both English and French. These reference books are considered extremely valuable especially for research laboratories. The price of Vol. X comprising more than 1800 pages is \$20 for both parts in cloth binding. Those who have purchased the International Critical Tables can obtain Vol. X at \$15.

A special reprint of the Engineering and Metallurgy Chapters from Vols. VIII and IX has been published and should be of special significance to those interested in engineering materials. A copy of this reprint is in the A.S.T.M. library and is available for members' use.

A.S.T.M. members who wish to obtain more complete information may write to the General Secretary of the Committee, Dr. Charles Marie, 9 rue de Bagneux, Paris, (VI°), France.

PERSONALS • • • News items concerning the activities of our members will be welcomed for inclusion in this column

H. M. SHARP is now President, The Maumee Asphalt Paving Co., Toledo, Ohio. He was Vice-President, The France Slag Co.

E. E. GRIEST, who was Vice-President-Manufacturing, Chicago Railway Equipment Co., is now with the Fort Pitt Malleable Iron Co., Pittsburgh, Pa., as Vice-President and General Manager.

J. L. WICK, President and General Manager, Falcon Bronze Co., Youngstown, has been nominated for president of the American Foundrymen's Assn. for the years 1936-1937, and HYMAN BORNSTEIN, Director of Laboratories, Deere and Co., for vice-president. L. N. SHANNON, Vice-President and Factory Manager, Stockham Pipe and Fittings Co., and DAN M. AVEY (A.F.A. President), Editor, *The Foundry*, were nominated for directors to serve for three years.

PAUL D. MERICA, formerly Assistant to the President, The International Nickel Co., has been made Vice-President.

ALEXANDER FOSTER, JR., Vice-President and Manager, Sand and Gravel Dept., Warner Co., was elected President of the National Sand and Gravel Assn. at its recent convention.

G. P. HALLIWELL, formerly Professor of Metallurgy, Carnegie Institute of Technology, has been appointed Director of Research, H. Kramer & Co., Chicago, Ill.

ROSS C. PURDY, General Secretary, American Ceramic Society, Inc., was recently elected an honorary member of the Czechoslovak Ceramic Society.

A. M. STEEVER has been appointed Superintendent, Columbia Tool Steel Co., Chicago Heights. Mr. Steever was formerly Vice-President-Technical Director, The Lindberg Steel Treating Co.

ROY H. NODERER is now District Manager, Metallurgical Dept., Lorain Division, Carnegie-Illinois Steel Corp., Johnstown, Pa. He was formerly Chief Chemist, Lorain Steel Co.

The Research Procedure Committee of the Engineering Foundation will include the following as members for the year 1936: F. F. COLCORD, Metallurgist, United States Smelting, Refining and Mining Co., F. M. FARMER, Vice-President and Chief Engineer, Electrical Testing Labs., THADDEUS MERRIMAN, Consulting Engineer, New York City, and W. H. FULWEILER, Consulting Chemist, Wallingford, Pa.

G. A. BECKETT is now President of the Riverside Cement Co., Los Angeles, Calif. He was formerly Manager of this company.

H. C. DICKINSON, Head Scientist, National Bureau of Standards, was honored with a life membership in the Society of Automotive Engineers at its recent annual meeting held in Detroit. Mr. Dickinson was president of the S.A.E. in 1933.

F. R. McMILLAN, Director of Research, Portland Cement Assn., was elected President of the American Concrete Institute at its recent annual convention held in Chicago, succeeding P. H. BATES, Chief, Clay and Silicate Products Division, National Bureau of Standards. J. C. PEARSON, Director of Research, Lehigh Portland Cement Co., was elected a vice-president. D. E. PARSONS, Chief, Masonry Construction Section, and A. H. STANG, Senior Engineer, National Bureau of Standards, were awarded Wason medals for research for their tests of Mesnager hinges.

Discussion on Yield Strength

AT THE annual meeting in June, 1935, a discussion was held on "the significance of 'yield strength' in design and specifications," introduced by discussions by five members as follows:

Yield Strength from the Viewpoint of Testing Engineer—H. H. Morgan, Manager, Rail and Fastenings Dept., Robert W. Hunt Co.
Discussion of Elastic Strength of Steel—Lawford H. Fry, Railway Engineer, Edgewater Steel Co.

The Yield Strength of Non-Ferrous Metals—R. L. Templin, Chief Engineer of Tests, Aluminum Co. of America.

Elastic Strength and Its Relationship to Creep—M. F. Sayre, Associate Professor of Applied Mechanics, Union College.

General Discussion—P. G. McVetty, Mechanical Engineer, Research Laboratories, Westinghouse Electric and Manufacturing Co.

The complete discussion has now been duplicated and is available for distribution. A. S. T. M. members may secure copies on request to the Society's Headquarters.



NEW MEMBERS TO MARCH 16, 1936

The following 71 members were elected from January 31 to March 16, 1936:

Company Members (16)

- CANADIAN GENERAL ELECTRIC CO., LTD., W. G. Birrell, Laboratory Engineer, 1025 Lansdowne Ave., Toronto, Ont., Canada.
- CHRYSLER CORP., DODGE BROTHERS DIVISION, F. E. McCleary, Metallurgical Engineer, 7900 Joseph Campau, Detroit, Mich.
- FABRICA DE CEMENTO SAMPER, Apartado 368, Bogota, Colombia.
- GAS LIGHT AND COKE CO., THE, G. C. Holliday, Secretary, Works and Products Committee, 84 Horseferry Road, London, S. W. 1, England.
- GOLIATH PORTLAND CEMENT CO., LTD., S. S. B. Purves, General Manager, Railton, Tasmania.
- GRINNELL CO., INC., A. W. Moulder, Vice-President, Providence, R. I.
- KENTUCKY COLOR AND CHEMICAL CO., A. J. Snyder, Chemist, Thirty-fourth and Bank Sts., Louisville, Ky.
- MASCHINENFABRIK AUGSBURG-NURNBERG A. G., Otto Meyer, Director, Augsburg Works, Augsburg, Germany.
- NATIONAL-STANDARD CO., C. E. Drake, Purchasing Agent, Niles, Mich.
- OLSEN TESTING MACHINE CO., TINIUS, R. B. Lewis, Chief Engineer, 500 N. Twelfth St., Philadelphia, Pa.
- RADIO MANUFACTURERS ASSN., V. M. Graham, Chairman, Standards Section, Engineering Division, P. O. Drawer 431, Emporium, Pa.
- SHARPLES SOLVENTS CORP., THE, L. H. Clark, Vice-President, Wyandotte, Mich.
- STELWAGON MANUFACTURING CO., C. R. Lyons, Technical Division, Nineteenth St. and Washington Ave., Philadelphia, Pa.
- TIDE WATER OIL CO., R. S. Stanfield, Supervisor of Engineering, East Twenty-second St., Bayonne, N. J.
- UNITED GAS IMPROVEMENT CO., THE, N. K. Chaney, Director of Research, 1401 Arch St., Philadelphia, Pa.
- WALTHAM BLEACHERY AND DYE WORKS, INC., J. W. McQuiston, President, Waltham, Mass.

Individual and Other Members (50)

- ARNOLD, E. A., Assistant Professor, Case School of Applied Science, Cleveland, Ohio.
- BASS, L. W., Director of Research, The Borden Co., 350 Madison Ave., New York City.
- BENNETT, HARRY, Chief Chemist, Glyco Products Co., Inc., 949 Broadway, New York City.
- BOWDEN, R. K., Manager, Metallurgical Dept., Chicago District, Carnegie-Illinois Steel Corp., 208 S. La Salle St., Chicago, Ill.
- BRYANT, L. N., Research Engineer, Davison Coke and Iron Co., Neville Island, Pa.
- CANISIUS COLLEGE LIBRARY, THE, 2001 Main St., Buffalo, N. Y.
- CINCINNATI, CITY OF, PURCHASING DEPT., H. F. Wagner, Assistant City Purchasing Agent, 143 City Hall, Cincinnati, Ohio.
- CLARK, A. P., Sales Agent, Division of Building Specialties, Bethlehem Steel Co., Inc., Bethlehem, Pa.
- DALTON, W. E., Sales Manager, Will Corp., Rochester, N. Y.
- DEWEY, BRADLEY, President, Dewey and Almy Chemical Co., 235 Harvey St., Cambridge, Mass.
- EDDY, W. P., Jr., Chief Metallurgist, General Motors Truck Corp., Pontiac, Mich.
- ERLER, JOHANNES, Metallurgist, Farrel-Birmingham Co., Ansonia, Conn.
- FARNSWORTH, W. B., Chief Metallurgist, Pittsburgh Steel Co., Monessen, Pa.
- FFIELD, PAUL, Materials Engineer, Bethlehem Shipbuilding Corp., Quincy, Mass.
- FITZGERALD, J. L., Superintendent, Premier Rubber Manufacturing Co., Dayton, Ohio.
- GASSAWAY, E. W., Yard Manager and Concrete Technologist, Sacramento Rock and Sand Co., Sixteenth and A Sts., Sacramento, Calif.
- GELDERMAN, C., Engineer, N. V. Van Leer's Vereenigde Fabrieken, Stadhouderskade 6, Amsterdam, The Netherlands.
- HILL, ARTHUR, In Charge of Tests and Cupolas, Canada Iron Foundries, Ltd., 277 St. Maurice St., Three Rivers, P. Q., Canada.
- HISCOX, A. E., Chief Chemist, Aetna Portland Cement Co., Fenton, Mich.
- HUDSON, E. L., Production Superintendent, Appalachian Electric Power Co., Cabin Creek, W. Va.
- HUNN, E. B., Research Director, Stanco, Inc., 2 Park Ave., New York City.
- ISOM, L. W., Concrete Technician, Dewey and Almy Chemical Co., 235 Harvey St., Cambridge, Mass.
- IYER, V. GOPALAM, Assistant Professor of Chemistry and Assaying, Department of Mining and Metallurgy, Hindu University, F/5, Staff Quarters, Benares, India.

- KLIEFOTH, M. H., Secretary, Burgess Titanium Co., 1011 E. Washington Ave., Madison, Wis.
- KUHL, W. J., District Manager, Robert W. Hunt Co., 720 Corbett Bldg., Portland, Ore.
- LINDBERG, L. A., Vice-President, Lindberg Steel Treating Co., 218 Union Park Court, Chicago, Ill.
- LOHNES, J. W., Special Representative, 1413 First National Bank Bldg., 38 S. Dearborn St., Chicago, Ill.
- LOS ANGELES, CITY OF, FIRE DEPT., R. J. Scott, Chief Engineer, 217 S. Hill St., Los Angeles, Calif.
- LUNN, J. A., Executive Assistant to the President, Dewey and Almy Chemical Co., 235 Harvey St., Cambridge, Mass.
- MASSACHUSETTS SEWERAGE DIVISION, METROPOLITAN DISTRICT COMMISSION, J. P. Dever, Chief Engineer, 20 Somerset St., Boston, Mass.
- MCINNIS, J. J., Assistant Manager, Eagle Rock Lime Co., Eagle Rock, Va.
- McKEE, JOSEPH, Grease Plant Superintendent, Sun Oil Co., Marcus Hook, Pa.
- MEACHAM, F. L., Manager, Materials and Process Engineering Division, Frigidaire Division, General Motors Corp., Dayton, Ohio.
- MILLER, M. A., Aluminum Research Laboratories, Aluminum Co. of America, New Kensington, Pa.
- MURPHY, GLENN, Assistant Professor of Theoretical and Applied Mechanics, Iowa State College, Ames, Iowa.
- NEELY, P. J., Chief Metallurgist, American Locomotive Co., Railway Steel-Spring Division, Latrobe, Pa.
- PELLY, J. F., Lubrication Engineer, Bethlehem Steel Co., Inc., Bethlehem, Pa.
- PENA, I. R., Chief Chemist, Central Constancia, Toa Baja, Puerto Rico. For mail: 5 Torres St., Ponce, Puerto Rico.
- PLUMMER, F. L., Associate Professor of Structural Engineering, Case School of Applied Science, Cleveland, Ohio.
- QUEENSLAND GOVERNMENT ANALYST, THE, J. B. Henderson, Government Analyst, William St., Brisbane, Australia.
- ROBBINS, F. J., Metallurgical Dept., Bliss and Laughlin, Inc., Harvey, Ill.
- ROSS, W. B., Assistant to Head of Technical Division, The Pure Oil Co., 35 E. Wacker Drive, Chicago, Ill.
- SAWYER, W. L., Administrative Assistant, College of Engineering, and Instructor, Department of Civil Engineering, University of Florida, Gainesville, Fla.
- SCHUEMANN, W. W., Chief Chemist, Empire Oil and Refining Co., Okmulgee, Okla.
- SPOONER, E. C. R., Technical Assistant to Works Director, National Smelting Co., Ltd., Avonmouth, England.
- STADTFELD, N. T. F., Engineer, U. S. Engineer Office, War Dept., Fort Peck, Mont.
- VENEZUELA, SALA TECNICA, MINISTERIO DE OBRAS PUBLICAS, Caracas, Venezuela.
- WILEY, GEORGE, Engineer, Nebraska Cement Co., Superior, Nebr.
- WILLIAMS, A. S., Director of Testing Laboratory, Protexol Corp., Kenilworth, N. J.
- YOW, WILLIAM, Technical Superintendent, Martha Mills, Division of The B. F. Goodrich Co., Thomaston, Ga.

Junior Members (5)

- ANDERSON, J. G., Draftsman, Engineering Dept., Taylor-Winfield Corp., Highland Park, Mich. For mail: 2129 Pennsylvania, Detroit, Mich.
- DIMOCK, A. R., JR., Student Naval Aviator, U. S. Navy, Naval Air Station, Pensacola, Fla.
- KLASSEN, H. C., Resin Chemist, Pittsburgh Plate Glass Co., 1444 N. Astor St., Milwaukee, Wis.
- MURRAY, W. M., Instructor in Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.
- SOMMERMAN, G. M. L., Research Engineer, American Steel and Wire Co., Worcester, Mass.

A review of the above list of new members will indicate that five continents are represented and there are new members from the following countries: Australia, Colombia, England, Germany, India, Puerto Rico, Tasmania, The Netherlands, and Venezuela.

Half and Half

The following contribution was sent in anonymously (probably by some A.S.T.M. committee chairman):

"Quite Different.—Said the chairman of a certain society at its annual meeting: 'In most kindred associations half the committee does all the work, whilst the other half does nothing. I am pleased to place on record that in the society over which I have the honor to preside it is just the reverse.'"—*El Paso World News*.

